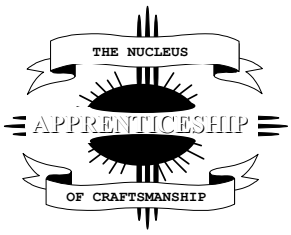
STANDARDS OF APPRENTICESHIP
adopted by

BOISE CASCADE INDUSTRIAL PLANT PROGRAM

(sponsor)

Skilled Occupational Objective(s):	DOT	Term
INDUSTRIAL INSTRUMENT TECHNICIAN	710.281-026	7200 HOURS
INDUSTRIAL MAINTENANCE ELECTRICIAN	829.261-018	7200 HOURS
INDUSTRIAL MAINTENANCE MILLWRIGHT	638.281-018	7200 HOURS
INDUSTRIAL MAINTENANCE PIPEFITTER	862.381-018	7200 HOURS



APPROVED BY
Washington State Apprenticeship and Training Council
REGISTERED WITH
Apprenticeship Section of Specialty Compliance Services Division
Washington State Department Labor and Industries
Post Office Box 44530
Olympia, Washington 98504-4530

APPROVAL:

JANUARY 16, 1975
Initial Approval

By: LAFRANK NEWELL
Chairman of Council

JULY 18, 1997
Addendum Amended

By: PATRICK WOODS
Secretary of Council

JULY 20, 2001
Committee Amended

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BOISE CASCADE INDUSTRIAL PLANT PROGRAM

NOTE: THE FOLLOWING ADDENDUM SHALL BE SPECIFIED TO THE INDIVIDUAL JOINT APPRENTICESHIP AND TRAINING COMMITTEE AND ITS CRAFTS AND PROBLEMS:

1. GEOGRAPHICAL AREA COVERED:

The area covered by these Standards shall be the confines of the Boise Cascade Pulp and Paper Mill at Wallula, Washington.

2. MINIMUM QUALIFICATIONS:

Age:	At least 18 years of age.
Education:	None
Physical:	None
Testing:	None
Other:	Must have a willingness and desire to learn the trade selected.

3. CONDUCT OF PROGRAM UNDER WASHINGTON EQUAL EMPLOYMENT OPPORTUNITY PLAN:

A. Selection Procedures:

The employer will select apprentices on its mechanical crews through a procedure developed by the employer with the assistance of the Apprenticeship Committee. Each person selected for a mechanical crew shall indicate their desire to learn a specific trade, as that trade is constituted in this particular mill and become a journeyman.

B. Affirmative Action Plan:

1. Utilize journeymen to assist in the implementation of the sponsor's affirmative action plan.

2. Grant advance standing or credit on the basis of previously acquired experience, training, skills or aptitude for all applicants equally.

3. Communicate the equal opportunity policy internally to encourage understanding, acceptance, and support among all employees.

4. Engage in any other such action as stated above to ensure that recruitment, selection, employment and training of apprentices during apprenticeship shall be without discrimination because of race, color, religion, national origin or sex.

4. TERM OF APPRENTICESHIP:

The term of apprenticeships for each craft shall be four years (7200 hours) of reasonably continuous employment and experience in the principal operations of the trade, including the probationary period.

5. PROBATIONARY PERIOD:

During the first 720 hours of employment an apprentice shall be classified as probationary and can be removed from the program at any time. Prior to removal, the Company shall notify the Standing Committee of the intended action and justification thereof. If the Committee considers the proposed removal unjustified, the matter may be taken up with the Mill Manager whose decision shall be final.

6. RATIO OF APPRENTICES TO JOURNEYMEN:

The ratio of apprentices in each particular trade and craft shall not be more than one (1) apprentice to every three (3) journeymen.

7. WAGE PROGRESSION:

Apprentices shall be paid on the following percentage basis in accordance with WAC 296-04-270(2)(c):

1st 12 months 73.5% journeyman rate
2nd 18 months 77.2% journeyman rate
3rd 18 months 84.5% journeyman rate

Plus all fringe benefits as per bargaining agreement.

8. WORK PROCESSES:

A. During the term of apprenticeship, the apprentice shall receive instruction and gain experience in all branches of the industrial maintenance electrician trade necessary to develop a skilled and practical mechanic in accordance with the following schedule:

Industrial Maintenance Electrician: D.O.T #829.261-018 Approximate Hours

1. Shop Arithmetic and Trade Fundamentals: 300
   - a. Common Fractions
   - b. Decimals
   - c. Ratio and Proportion
   - d. Measuring
   - e. Arithmetic of Right Angles
   - f. Blueprint Reading and all types of Electrical Prints
   - g. Speed Ratios of Pulleys, Gears and Sprockets
   - h. Thread Forms
   - i. Screw Fastenings
   - j. Elementary Mechanics
   - k. Elementary Sketching
   - l. Principles of Electricity
     - (1) Electricity, Matter and Resistance
     - (2) Ohm's Law
     - (3) Series Circuits
     - (4) Parallel Circuits
     - (5) Work, Power and Energy
     - (6) Magnetism
     - (7) Inductance and Capacitance
     - (8) Meters and Instruments
     - (9) D.C. Motors and Generators (Especially Characteristics)
     - (10) A. C. Motors and Generators (Especially Characteristics)
     - (11) Rectifiers
     - (12) Amplifiers
     - (13) Voltage Regulators
     - (14) A.C. Circuits
     - (15) Lighting Circuits
     - (16) Transformers
     - (17) Three-Phase Systems
     - (18) Synchronous Motors
     - (19) Reactors
     - (20) Transistors and Transistor Circuits
     - (21) Reading and Working from Electrical Schematics

2. Use of Hand Tools: 260
   a. Hack Saw
   b. Wrenches - Sockets, Spanner, and Pipe
   c. File
   d. Pipe Reamer
   e. Drills, Taps, and Dies
   f. Gear Pullers, Screw and Hydraulic
   g. Silver and Soft Soldering
   h. Light Welding
   i. Burning and Heating
   j. Hickey
   k. Portable Bender

3. Use of Precision Tools: 160
   a. Feeler Gauges
   b. Wire Gauges
   c. Dial Indicators
   d. Micrometer

4. Use of Power Tools: 320
   a. Pipe Bender
   b. Drill Press
   c. Concrete Drill
   d. Grinder
   e. Electric Drills
   f. Portable and Fixed Threader

5. Use of Test Equipment: 460
   a. Ohmmeter
   b. Ammeter
   c. Megohmeter
   d. Growler
   e. Ground Detector
   f. Thermometers
   g. Voltmeter - also high voltage meter
   h. Recording S.W. Meters
   i. Power Factor Meter
   j. Stroboscope
   k. Tachometers
   l. Vibration Analysis Equipment
   m. Relay Test Equipment

6. Rigging: 40
   a. Slings
   b. Chain Falls

c. Jacks
d. Ladders
e. Rope Blocks

7. Staging: 40
   a. Demountable Scaffold
   b. Telescoping Platform

8. Trouble Shooting: 1000
   a. Test, Locate, and Repair Faults in Electrical Circuits
   b. Test and Locate Motor Faults
   c. Analysis of Cause and Effect of Failure
   d. Misalignment of Equipment

9. Mill Process: 250
   a. General knowledge of Electrical Systems in Mill
   b. Limited Knowledge of Steam System, as ft effects equipment under care of Electricians
   c. Practical Working Knowledge of Paper Machine Drives

10. Supervision of Men of Lower Classification: 100
   a. Training
   b. Mill Rules

11. Safety: 300
   a. Rules for Electrical Maintenance
   b. Tagging Out Equipment and Clearing of Completed Job
   c. Ladders, Use Of
   d. Artificial Respiration
   e. Use and Care of Gas Mask
   f. Recognition and Care of Electrical Shock Victim
   g. Hot Work - When Permitted and When Forbidden
   h. Resuscitator
   i. Climbing Precautions
   j. Grounding Precautions
   k. How to Turn in a Fire Alarm

12. Materials: 60
   a. Dielectric Materials
   b. Bus Materials
   c. Wire Size and Capacities
   d. Insulation Temperatures

13. Line Work: 20
    a. Knowledge of Climbing Technique
    b. Ability to Climb (Unless Health Prevents)
    c. Ability to Work in High, Hot Places

14. Installation and Repair of Distribution Equipment:..... 1100
    a. Oil Circuit Breakers
    b. Air Circuit Breakers
    c. Transformers and Their Connections
    d. Current and Potential Transformers
    e. Metering Circuits
    f. Fuses
    g. Pole Top Switches
    h. Disconnects
    i. Potheads and Underground Systems
    j. Overload and Short Circuit Protection
    k. Meters (Adjusting, Care and Testing)
    l. Lightning Arrestors

15. Wiring: 1000
    a. Conduit Work
    b. Wire Pulling
    c. Splicing and Taping
    d. General Principles and Practice of Wiring
    e. Cable Tray Construction and Wire Pulling

16. Installation and Repair of Controls:..... 1100
    a. Changing Contractor Coils
    b. Relays
    c. Starters
    d. A.C. Controls
    e. Drum Controllers
    f. Photoelectric Cells
    g. Interlocks
    h. Speed Control of D.C. Motors
    i. Dynamic Braking
    j. Field Application Panels
    k. Crane Controls

17. Installation and Repair of Motors and Generators: 480
    a. Lubrication
    b. Couplings
    c. Cleaning and Drying Out
    d. Bearings
    e. Dismantling and Repair
    f. Checking Air Gap

g. Rewedding Coils
h. Commutator and Slip Ring Maintenance
i. Brush Maintenance
j. Protective Devices
k. Internal Connections

18. Installation Maintenance Electrician: 100

19. Installation and Repair of Lighting: 50

20. Miscellaneous Equipment: 60
    a. Magnetic Brakes
    b. Limit Switches
    c. Pressure Switches
    d. Zero Speed Switches
    e. Vane and Reed Switches
    f. Proximity Switches

TOTAL ESTIMATED HOURS: 7200

ALL OF THE FOREGOING WORK EXPERIENCE AS HEREIN NOTED IS UNDERSTOOD TO MEAN AS IT PERTAINS TO THE TRADE HEREIN INVOLVED IN THESE STANDARDS.

B. Industrial Maintenance Millwright: DOT #638.281-018 Approximate Hours

During the term of apprenticeship, the apprentice shall receive instruction and gain experience in all branches of the Industrial Maintenance Millwright trade necessary to develop a skilled and practical mechanic in accordance with the following schedule:

1. Shop Arithmetic and Trade Fundamentals: 260
   - a. Common Fractions
   - b. Decimal Fractions
   - c. Ratio and Proportion
   - d. Measuring
   - e. Arithmetic of Right Angles
   - f. Blueprint Reading
   - g. Speed Ratios of Pulleys, Gears, and Sprockets
   - h. Thread Forms
   - i. Screw Fastenings
   - j. Elementary Sketching
   - k. Elementary Mechanics
     - (1) Levers
     - (2) Cams
     - (3) Incline Plane, Wedge, and Screw
     - (4) Friction
     - (5) Rope Blocks
   - 1. Elementary Hydraulics

2. Use of Hand Tools: 320
   - a. Wrenches - all types
   - b. Drills, Taps, and Dies
   - c. Hack Saw
   - d. Files
   - e. Hammers - all types
   - f. Pry Bar
   - g. Gear Pullers, Screw and Hydraulic
   - h. Bearing Scraper
   - i. Reamers
   - j. Saws - all types
   - k. Steel Square
   - l. Combination Square
   - m. Rules and Tapes
   - n. Plane
   - o. Chisels and Bits
   - p. Pliers and Cutters
   - q. Level and Plumb Bob
   - r. Screw Driver
   - s. Drifts, Punches

t. Silver and Soft Soldering
u. Burning and Heating
v. Are and Acetylene Welding
w. Packing Pullers
x. Gasket Cutting

3. Use of Precision Tools: 160
   a. Feeler Gauges
   b. Dial Indicators
   c. Micrometers
   d. Precision Level

4. Use of Power Tools: 450
   a. Drill press
   b. Chipping
   c. Portable Drills
   d. Power Hack Saw
   e. Hydraulic Press
   f. Grinder
   g. Band Saw
   h. Table Saw
   i. Jointer
   j. Bolt Threader
   k. Jack Hammer
   l. Stud Gun (Must be Licensed Operator)
   m. Impact Wrench

5. Use of Test Equipment: 60
   a. Ultrasonic Sound Detector
   b. Vibration Analysis Equipment

6. Rigging: 100
   a. Slings
   b. Ladders
   c. Chain Blocks
   d. Rope Blocks
   e. Coffin Hoists
   f. A-Frames and Stiff Legs
   g. Screw and Hydraulic Jacks
   h. Cable and Rope Splicing

7. Staging: 40
   a. Wood Scaffolding
   b. Demountable Scaffolding
   c. Telescoping Platform

8. Trouble Shooting of Mechanical Equipment: 1000

9. Knowledge of Mill Processes: 60

10. Supervision of Men of Lower Classification: 100
    a. Training
    b. Mill Rules

11. Safety: 400
    a. Tagging Out Equipment and Clearing of Completed Job
    b. Ladders, Use Of
    c. Artificial Respiration
    d. Use and Care of Gas Masks
    e. Precautions around Machines
    f. Precautions around Overhead Work
    g. Precautions around Welding and Burning
    h. Precautions around Dangerous Chemicals
    i. How to Turn on a Fire Alarm

12. Materials: 160
    a. Recognition and Properties of Metal and Woods

13. Layout Work: 100
    a. Layout of Simple Geometric Figures and Transitions
    b. Layout, Frame and Raiser Timbers

14. Power Transmission Equipment: 800
    a. Belts - "V" and Flat
    b. Chains - Roller and Silent
    c. Gear Reducers
    d. Sole Plates and Foundations
    e. Adjusting Gear Clearances
    f. Coupling Alignment
    g. Rope Drive and Rope Splicing

15. Bearings - Plain and Anti-Friction: 400
    a. Identification
    b. Inspection
    c. Installing and Dismantling
    d. Pouring, Scraping and Grooving of Babbitt Bearings

16. Concrete Work: 400
    a. Forms

b. Reinforcing Steel
c. Placing Anchor Bolts
d. Pouring, Settling, Surface Finishing
e. Grouting

17. Pumps:..... 500
    a. General Knowledge of Operation and Types
    b. Packing
    c. Dismantling, Replacement of Parts and Reassembling

18. Equipment Installation: 800
    a. Layout
    b. Setting of Equipment
    c. Leveling and Alignment

19. Hydraulic and Pneumatic Cylinders: 150

20. Familiarity with Miscellaneous Mill Equipment: 940
    a. Reduction Gears
    b. Paper Machine Rolls
    c. Hydraulic Jacks
    d. Collapsible Shafts
    e. Clutches and Brakes
    f. Other Equipment

TOTAL ESTIMATED HOURS: 7200

ALL OF THE FOREGOING WORK EXPERIENCE AS HEREIN NOTED IS UNDERSTOOD TO MEAN AS IT PERTAINS TO THE TRADE HEREIN INVOLVED IN THESE STANDARDS.

C. Industrial Maintenance PipeFitter: DOT #862-381-018 Approximate Hours

During the term of apprenticeship, the apprentice shall receive instruction and gain experience in all branches of the Industrial Maintenance Pipefitter trade necessary to develop a skilled and practical mechanic in accordance with the following schedule

1. Shop Arithmetic and Trade Fundamentals: 300
   - a. Common Fractions
   - b. Decimal Fractions
   - c. Ratio and Proportion
   - d. Measuring
   - e. Blueprint Reading
   - f. Elementary Sketching
   - g. Arithmetic of Right Angles
   - h. Calculation of Areas and Volumes
   - i. Arithmetic of Pipe Bends
   - j. Pipe Offset Calculations
   - k. Layout of Angles with Steel Square
   - l. Knowledge of Welding Symbols
   - m. Speed Ratios of Pulleys, Gears, and Sprockets
   - n. Elementary Mechanics
     - (1) Levers
     - (2) Cams
     - (3) Incline Plane, Wedge, and Screw
     - (4) Friction
     - (5) Rope Blocks
   - o. Elementary Hydraulics
   - p. Elementary Pneumatics

2. Use of Hand Tools: 520
   - a. Wrenches - all types
   - b. Drills, Taps, and Dies
   - c. Hack Saw
   - d. Files
   - e. Hammers - all types
   - f. Steel Square
   - g. Rules and Tapes
   - h. Chisels, Easy-outs
   - i. Level and Plumb Bob
   - j. Pry Bar
   - k. Cutting and Reaming Pipe
   - l. Pipe Threading
   - m. Tube Rolling
   - n. Gasket Cutter
   - o. Calipers, Dividers, and Protractor

p. Silver and Soft Soldering
q. Burning and Heating
r. Arc and Oxygen-Acetylene Welding

3. Use of Power Tools:..... 800
   a. Power Hack Saw
   b. Pipe Cutting Machine
   c. Power Pipe Threader
   d. Drill Press
   e. Portable Drill
   f. Pipe Bending Machine
   g. Friction Saw Portable Power Saw
   h. Portable Power Saw
   i. Grinder
   j. Sander
   k. Chipping Gun
   l. Electric Welding Machine

4. Rigging: 100
   a. Slings
   b. Ladders
   c. Coffin Hoists
   d. Chain Blocks
   e. Rope Blocks
   f. Plate Clamps

5. Staging: 70
   a. Demountable Scaffold
   b. Telescoping Platform

6. Trouble Shooting Within the Fitters Trade:..... 700

7. Knowledge of Mill Process: 60

8. Supervision of Men of Lower Classification:..... 100
   a. Training
   b. Mill Rules

9. Safety: 400
   a. Tagging Out Equipment and Clearing of Completed Job
   b. Ladders, Use Of
   c. Artificial Respiration
   d. Use and Care of Gas Masks
   e. Precautions Around Machines
   f. Precautions Around Overhead Work

g. Precautions Around Dangerous Chemicals
h. Precautions Around Welding and Burning
i. Precautions when Arc Welding
j. Fire Hazards
k. How to Turn in a Fire Alarm

10. Materials 360
    a. Recognition and Properties of Metal and Plastics
    b. Gasket Materials
    c. Packing Materials
    d. Lubricants, Cutting Oils, Anti-Freeze Compounds,
    e. Identification of Metals
    f. Weldability of Metals
    g. Choice of Rods
    h. Fluxes
    i. Hard surfacing Materials

11. Layout Work: 400
    a. Pipe Intersection
    b. Hangers
    c. Offsets
    d. Miter Elbows

12. Knowledge of Use of Valves, Pipe Fittings, Expansion Joints: 200

13. Valve Maintenance: 300
    a. Dismantling, Replacing Parts, Reassembling
    b. Valve Grinding
    c. Valve Packing
    d. Adjusting of Air Operated and Motor Operated Valves, Reducing Valves, and Safety Valves

14. Measure, Cut and Install Pipe: 800
    a. Screwed Fittings
    b. Flanged Fittings
    c. Welded Pipe
    d. Tubing, flared, Compression, Soldered
    e. Fabricated Thin Wall Pipe
    f. Non-Metallic Pipe (Plastic, Fiberglass, Transit, etc.).
    g. Lead Pipe
    h. Cast Iron Pipe
    l. Rubber Hose

15. Dryer Syphons and Steam Joints: 250
    a. Installation and Repair of Rotating Syphons
    b. Installation and Repair of Stationary Syphons

c. Installation and Repair of Steam Joints

16. Steam and Air Traps: 300
    a. Installation and Repair of Air Traps
    b. Installation and Repair of Bucket Traps
    c. Installation and Repair of Thermostatic Traps
    d. Installation and Repair of Float Traps
    e. Installation and Repair of Impulse Traps

17. Hydraulic and Pneumatic Cylinders and Control Valves: 300
    a. Dismantle, Repair, Reassemble, Install Air and Hydraulic Cylinders
        (1) Piston Ring Type
        (2) O-Ring Type
        (3) Cup Packing Type
    b. Dismantle, Repair, Reassemble, Install Air and Hydraulic Control Valves

18. Burning: 300
    a. Oxygen-Acetylene Torch, all material thicknesses and positions
    b. Carbon-Arc and Air-Arc
    c. Machine Burning
    d. Other Burning Equipment

19. Gas Welding: 300
    a. Technique-Various Types of Joints and Positions
    b. Hard Surfacing
    c. Carbon Steel - must be capable of being certified under ASME Code for 1/2" thickness - any position
    d. Copper and Alloys
    e. Stainless Steel

20. Arc Welding:..... 500
    a. Technique-Various Types of Joints and Positions
    b. Knowledge of P roper Voltage and Amperage for Various Sizes and Types of Rod
    c. Any Metal, Any Position, Any Method, and Capable of being certified under A S M E Code for 7/8" thick Carbon Steel

21. Brazing:..... 50
    a. Copper and Alloys
    b. Cast Iron
    c. Steel

22. Preheating and Stress Relieving: 50

23. Familiarity with Fire Protection Equipment: 40
    a. Location of P.I. Valves, Hose Houses, Hydrants
    b. Installation and Repairs to the Above
    c. Fire Extinguishing Equipment

TOTAL ESTIMATED HOURS: 7200

ALL OF THE FOREGOING WORK EXPERIENCE AS HEREIN NOTED IS UNDERSTOOD TO MEAN AS IT PERTAINS TO THE TRADE HEREIN INVOLVED IN THESE STANDARDS.

D. Industrial Instrument Technician: DOT #710.281-026 Approximate Hours

During the term of apprenticeship, the apprentice shall receive instruction and gain experience in all branches of the Industrial Instrument Technician trade necessary to develop a skilled and practical mechanic in accordance with the following schedule:

1. Shop Arithmetic and Trade Fundamentals: 540
   - a. Common Fractions
   - b. Decimal Fractions
   - c. Ratio and Proportion
   - d. Square Root
   - e. Measuring
   - f. Arithmetic of Right Angles
   - g. Arithmetic of the Circle
   - h. Calculation of Area and Volume
   - i. Speed Ratios of Pulleys, Gears, and Sprockets
   - j. Blueprint Reading
   - k. Elementary Sketching
   - l. Thread Forms
   - m. Screw Fastenings
   - n. Elementary Mechanics
     - (1) Levers
     - (2) Cams
     - (3) Incline Plane, Wedge, and Screw
     - (4) Friction
     - (5) Rope Blocks
   - o. Elementary Hydraulics
   - p. Elementary Pneumatics
   - q. Elementary Physics
   - r. Elementary Chemistry
   - s. Elementary Electricity
   - t. Advanced Electronics
   - u. Basic Digital Theory

2. Use of Hand Tools: 260
   - a. Wrenches - all types
   - b. Drills, Taps, and Dies
   - c. Hack Saw
   - d. File
   - e. Hammers - all types
   - f. Pry Bar
   - g. Combination Square
   - h. Rules and Tapes
   - i. Drifts, Punches
   - j. Cold chisels

k. Pliers and Cutters
l. Screw Drivers
m. Tube Cutting, Flaring, Bending Tools
n. Silver and Soft Soldering, Brazing

3. Use of Precision Tools: 90
   a. Feeler Gauge
   b. Dial Indicator
   c. Micrometers and Calipers
   d. Depth Gauge

4. Use of Power Tools: 150
   a. Drill Press
   b. Portable Drills
   c. Power Hack Saw
   d. Grinder
   e. Pipe Threader
   f. Engraving Machine
   g. Cinch Anchor Driver (Must Be Licensed Operator)

5. Use of power Tools: 600
   a. Voltmeters, Ammeters, Ohmmeters
   b. Pneumatic Calibrator
   c. Pressure Test Gauges

5. Use of power Tools: (Continued
   d. Transistor Checker
   e. Portable Pyrometer
   f. Resistance Bridge
   g. Gauge Tester
   h. Process Simulators
   i. Cathode Ray Oscilloscope
   j. Thermocouple Test Set
   k. All Pressure Standards
   l. Mag Flow Calibrator
   m. Portable Temperature Meters
   n. Freq Counter and Freq Generator

6. Rigging: 40
   a. Slings
   b. Chain Blocks
   c. Ladders
   d. Coffin Hoists

7. Staging: 40
   a. Demountable Scaffold

b. Telescoping Platform

8. Trouble Shooting: 800
   a. Test, Locate, Diagnose, and Repair Malfunctions in Instruments and Control Equipment
   b. Complete Understanding of Process Control Equipment and Their Effect on the Processes

9. Mill Process: 400
   a. Complete Understanding of Mill Processes
   b. Complete Knowledge of Steam System, as it affects equipment under the care of instrument repairmen
   c. Complete Knowledge of Mill Air and Water Systems

10. Supervision of Men of Lower Classification: 100
   a. Training
   b. Mill Rules
   c. Mill Safety Rules

11. Safety: 300
   a. Tagging Out Equipment and Clearing of Completed Jobs
   b. Ladders, Use Of
   c. Artificial Respiration
   d. Use and Care of Gas Masks
   e. Precautions Around Machines
   f. Precautions Around Overhead Work
   g. Precautions Around Welding and Burning
   h. Precautions Around Dangerous Chemicals
   i. Knowledge of Hazards Due to Instrument Failure and Emergency Steps During Instrument Failure
   j. How to Turn in a Fire Alarm

12. Materials: 100
   a. Identification of Metals and Plastics
   b. Knowledge of Properties of Metals and Plastics

13. Installation, Servicing, and Repair of Instruments and Automatic Controls.....1400

   a. Instruments for Measuring and Control of Pressure
   b. Instruments for Measuring and Control of Temperature
   c. Instruments for Measuring and Control of Flow
   d. Instruments for Measuring and Control of Liquid Level
   e. Instruments for Measuring and Control of Specific Gravity
   f. Instruments for Measuring and Control of Speed

g. Instruments for Measuring and Control of Thickness
h. Instruments for Measuring and Control of Weight
i. Instruments for Measuring and Control of Combustion Products
j. Instruments for Measuring and Control of Moisture
k. Instruments for Measuring and Control of Humidity
l. Instruments for Measuring Force and Torque
m. Instruments for Measuring and Control of Chemical Concentration (PH, Conductivity, SO2, etc.)
n. Stock Consistency Regulators and Control of Stock Thickness
o. Radio-Isotope Gauging, Principles and Basic Trouble Shooting
p. Remote Transmission (Pneumatic, Electronic)
q. Instrument Timers
r. Photoelectric Controls
s. Electric and Technical Counters
t. Valve Positioners
u. Felt and Wire Guides

14. Installation of Tubing and Small Pipe: 200

15. Assembly, Testing, Repair, and Adjusting of Control Valves: 500

16. Trouble Shooting and Repair of Pneumatic and Electric Controls:.....500

17. Trouble Shooting and Repair of Electronic Instruments and Equipment:.....500

18. Silver and Soft Soldering: 40

19. Brazing and Heating: 40

20. Assembly, Testing, Repair, and Adjusting of Reducing Valves, Self-Actuated Regulators:.....600

TOTAL ESTIMATED HOURS: 7200

ALL OF THE FOREGOING WORK EXPERIENCE AS HEREIN NOTED IS UNDERSTOOD TO MEAN AS IT PERTAINS TO THE TRADE HEREIN INVOLVED IN THESE STANDARDS.

9. RELATED/SUPPLEMENTAL INSTRUCTION:

A. Each apprentice shall enroll in and attend classes in subjects related to this trade, as approved by the State Board for Community and Technical Colleges for a minimum of 144 hours per year.

B. The methods of related/supplemental training shall consist of one or more of the following:

( ) Supervised field trips

(X) Approved training seminars

(X) A combination of home study and approved correspondence courses

( ) Technical College

(X) Community college

( ) Training trust

( ) Other (specify)

C. Hours 144

D. Satisfactory progress must be maintained in related training classes. (See Section 10, Administrative/Disciplinary Procedures).

E. These technical instruction courses must be completed by the apprentice prior to the end of the four (4) year period.

F. The apprentice will bring all his/her lessons together with his/her answered questions to the coordinator to be graded. Where the coordinator indicated by grading that any particular subject or portion thereof is not fully understood, the coordinator, Apprenticeship Committee, or designated representative, will review the work in question with the apprentice to assure that each phase of the apprentice's course is clarified.

G. The apprentice will be expected to exercise the same diligence in such work and assignments as he/she does in his/her practical mill work. The determination of apprentice's progress and fitness for the trade will be based in part upon the proficiency shown in these related activities. Progress reports of this phase of the apprenticeship will be supplied to the Apprenticeship Committee.

H. If an apprentice falls six (6) lessons behind in -his/her course or does not maintain a "B" or better average, he/she will be given an official warning by the

Apprenticeship Committee and such apprentice will be given an additional six (6) months in which he/she must then complete the delinquent or substandard lessons while maintaining satisfactory progress on current lessons. Failure to complete such substandard or delinquent lessons will subject the apprentice to discharge from the program. Extenuating circumstances will be given careful consideration.

I. All time spent taking advancement tests will count as hours worked unless scheduled outside of normal testing hours at the request of the apprentice.

10. ADMINISTRATIVE/DISCIPLINARY PROCEDURES:

A. Training Coordinator:

The Company shall assign duties of training coordinator to one person who will:

1. Act as Chairman of the Apprenticeship Committee without vote.

2. Administer the program on a day-by-day basis, maintaining the contact with apprentices, supervisors and committee, necessary to assure a healthy program.

3. Attend Apprenticeship Committee meetings to provide information and to receive the benefits of the Apprenticeship Committee's suggestions on improvements of the program.

4. Keep up-to-date records on each apprentice.

5. Act as counselor for apprentices.

B. Responsibilities of the Apprenticeship Committee:
It shall be the responsibility of the Apprenticeship Committee to:

1. Adopt rules and regulations for the conduct of its affairs.

2. Hold necessary meetings and record the minutes there of.

3. Assure that appropriate records relating to the administration of the program are kept.

4. Establish and revise as necessary standards of apprenticeship for the trades as they are constituted at the mill.

5. Develop test and testing procedures as applicable to the program. Employees will not be tested on equipment, which does not exist in the mill.

6. Establish schedules relating to on-the-job training and study training as supplemented by required courses or other available outside study.

7. Establish enforcement procedures for the schedules of training and standards of apprenticeship as established by this program.

8. Periodically review the records of apprenticeship progress and require enforcement by the training coordinator of the schedule for training.

9. Adjust or determine disputes arising in connection with the administration of the apprenticeship training standards.

C. Rules of Operation:

The following rules shall govern the operation of the program:

1. The Company will adopt an organized plan, as far as practical, of rotating each person below journeyman, through different departments and under different journeymen, in order that they may gain the widest variety of experience in the work of their chosen trades.

2. Each person selected shall indicate, in writing, a desire to learn the trade and to become a journeyman and their willingness to take through courses or other available outside schooling whatever subjects may be needed to become a qualified journeyman.

3. Each apprentice shall be responsible for maintaining a record of the time spent on each work process and in related and supplemental instruction pursuant to the rules of the Apprenticeship Committee.

4. Progress and qualifications of each mechanic below the grade of journeyman will be periodically reviewed at intervals of not more than six (6) months. If the employee so desires, he/she may have a Union Mechanic's Committee representative present at the time his/her progress report is discussed. Records of reviews shall be maintained.

5. The progress and qualification of each apprentice will be reviewed by the Apprenticeship Committee at any time during each six (6) month interval at the request of the apprentice, or his/her supervisor, or a member of the Apprenticeship Committee. Records of reviews shall be maintained.

6. The Apprenticeship Committee shall consider the apprentice's previous on-the-job experience and training and prior schooling in the trade, and to the extent warranted, may propose to management the shortening of the term of apprenticeship.

7. The apprentice shall be tested at each interval of the Apprenticeship program. The test shall be administered and graded by the Company and the results will be made subject to the review conducted in accordance with 4 and 5 above.

D. Company Responsibilities:

It shall be the responsibility of the Company to:

1. Administer the taking and grading of all tests.

2. Provide, insofar as practical, diversified training in a trade as it is constituted at the mill, and to that end, rotate and assign an apprentice to different areas under different journeymen within the chosen trade in order that he/she may gain the widest possible variety of experience.

3. Certify each step of the apprenticeship program. Upon completion of the Apprenticeship Program and recommendation of the Apprenticeship Committee, a completion certificate shall be issued by the Apprenticeship Committee.

4. Provide assistance when required during training periods by the training coordinator and/or his qualified representative in response to the needs of the program.

5. Reimburse the apprentice after satisfactory completion of study courses and upon presenting evidence of satisfactory completion of a course and a receipt for payment.

E. During the first 720 hours of employment after an applicant has been regularly assigned, he/she will be classified as probationary on that crew and can be removed from the crew at any time during that period.

This 720 hour probationary period may be extended, by mutual agreement, an additional 720 hours. Prior to removal from the crew of any such probationary apprentice because of his/her performance, the Employer will notify the Apprenticeship Committee of the intended action and the justification there of. If the Apprenticeship Committee considers the proposed removal unjustified, it may take the matter up with the Mill Manager, whose decision in the matter shall not be subject to the Arbitration procedure. If such applicant is transferred to the mechanical crew from another department in the plant, he/she will retain seniority in the department from which he/she transferred for a period of ninety (90) days or one hundred eighty (180) days as applicable and will be returned to the job from which he/she transferred if removed from the crew. During the probationary period the Employer will determine as quickly as is practical

whether or not the applicant has the aptitude and other characteristics necessary to become a journeyman.

F. The progress and qualifications of each apprentice will be periodically reviewed at intervals of not more than six (6) months. Records of the results of these reviews will be maintained and will, at his/her request, be discussed at six (6) month intervals. Whenever such a review of such an apprentice has been completed, the committee shall notify him/her in writing, with a copy to the Local Union, calling attention to the completion of such review and his/her right to request a discussion of it. If the employee so desires, he/she may have a Union Mechanic's Committee representative present at the time his/her progress report is discussed.

G. The employer will adopt an organized plan as far as practical of rotating each apprentice through different departments and under different journeymen, in order that he/she may gain the widest variety of experience in the work of his/her chosen trade.

Rotation of Apprentice:

The apprentice shall be rotated through all departments. For the purpose of this program, the mill has been divided into six (6) areas.

AREA #1 - #1 and #2 PAPER MACHINES - Area will include:

1. Stock Preparation Departments
2. Paper Machines
3. Waste Paper Processing
4. Market Pulp Baling Department
5. Shipping Department
6. Yard and Shop

AREA #2 - #4 PAPER MACHINE - Area will include:

1. Stock Prep
2. Paper Machine
3. Shipping Department
4. Yard and Shop

AREA #3 - PULP MILL - Area will include:

1. Chip Unloading and Handing
2. Pulp Mill (Kraft)
3. Pulp Mill (NSSC)
4. Yard and Shop

G. AREA #4 - RECOVERY AREA - Area will include:

1. Evaporation
2. Recoveries
3. Power Boilers
4. Yard and Shop

AREA #5 - DIGESTER/BLEACHING - Area will include:

1. Kamyr
2. M & D Digester
3. Bleach Plant
4. Yard and Shop

AREA #6 - CHEM PREP - Area will include:

1. Causticizing
2. Lime Kiln
3. SVP Plant
4. Yard and Shop

H. Apprentice's Hours and Supervision:
The basic work day and work week for apprentices shall be the same as that of a journeyman and the apprentices shall be subject to the same conditions; including, but not limited to: accepted work rules pertaining to all safety codes, dependability, and reliability, extensive tardiness or absenteeism. Upon proper and legal review by the Apprenticeship Committee, the apprentice may be canceled from the apprenticeship program for failure to abide by these work rules. At no time will an apprentice by permitted to work without being under the supervision of a journeyman.

The supervisor of apprenticeship shall receive a document compiled by the Boise Cascade Apprenticeship Committee which has a copy of all forms used by the Committee for evaluation of the apprentice and a complete lesson description for each craft. A copy of this document shall also be given to each apprentice after he/she begins training.

11. COMPOSITION OF COMMITTEE AND ALTERNATES:

The Apprenticeship Committee shall consist of eight (8) members equally represented by Boise Cascade and Local #69.

The Employer Representatives Shall Be:

Ross Procter, Co-Chairman
Boise Cascade
PO Box 500
Wallula, WA 99363

Howard Reller, Training Coordinator
Boise Cascade
PO Box 500
Wallula, WA 99363

Chuck Glessner, Secretary
Boise Cascade
PO Box 500
Wallula, WA 99363

Robert Sandusky
Boise Cascade
PO Box 500
Wallula, WA 99363

Ernie Horvath, Alternate
Boise Cascade
PO Box 500
Wallula, WA 99363

11. COMPOSITION OF COMMITTEE AND ALTERNATES: (Continued)

The Employee Representatives Shall Be:

Darin Perna, Chairman
Boise Cascade
PO Box 500
Wallula, WA 99363

Ken Goodenow
Boise Cascade
PO Box 500
Wallula, WA 99363

John Stewart
Boise Cascade
PO Box 500
Wallula, WA 99363

Gene Bonderman
Boise Cascade
PO Box 500
Wallula, WA 99363

Allen Adams, Alternate
Boise Cascade
PO Box 500
Wallula, WA 99363

Mike Pherigo, Alternate
Boise Cascade
PO Box 500
Wallula, WA 99363

Jay Schwisow, Alternate
Boise Cascade
PO Box 500
Wallula, WA 99363

Kim Mason, Alternate
Boise Cascade
PO Box 500
Wallula, WA 99363

12. SUBCOMMITTEE: (None)

13. TRAINING DIRECTOR/COORDINATOR:

Howard Reller, Training Coordinator
Boise Cascade

PO Box 500
Wallula, WA 99363